2. A NOTE ON THE YELLOW THROATED MARTEN *MARTES FLAVIGULA* (BODDAERT) IN WEST PAKISTAN

Since this animal is partly diurnal in its activities, and like other members of the 'Mustelinidae', is quite bold and fearless of man, it would seem a suitable subject for the amateur naturalist to study. Despite this in S. H. Prater's BOOK OF INDIAN ANIMALS it is stated that nothing has been recorded of their breeding habits, and it is evident that much still needs to be learned about its biology.

During the late 1950s and early 1960s this beautiful animal could often be seen in the more secluded parts of the Murree Hills in West Pakistan. It is distressing therefore to record that during eight days spent at Dunga Gali in the Murree Hills in early April 1970 that no trace of the Yellow Throated Marten was observed by the author even though localities were searched where one could previously count on seeing them. In early April human disturbance is minimal in this area, particularly as the local hill-folk remain in their winter residences lower down the hillside until there is sufficient spring growth of vegetation to support their grazing and browsing livestock. It would appear therefore that in the more accessible forested areas of the Himalayas that the Yellow Throated Marten is already under pressure from increased human interference and hunting and that the few observations which the author has been able to collect about this species may be worth publishing.

Five subspecies were recognized (Ellerman & Morrison-Scott 1951). Races occurring in Indonesia and Malaya are undoubtedly characterised by darker and richer coloration of the fur particularly the yellow fur along the sides of the throat and neck. All the forms occurring in West Pakistan territory belong to the nominate race. After examining between seventy and eighty skins in the possession of fur traders, in Peshawar, Rawalpindi, and Murree, it is only possible to state that there is considerable colour variation amongst the West Pakistan specimens. But on average there is rather more cream or silver tipped guard hairs extending over the shoulders and upper part of the back as compared with the specimens of *Martes f. peninsularis* & *M. f. indochinensis* which the author has been able to study in the British Museum collection. It has also been noticed that sub-adult specimens from West Pakistan have a more uniformly brown coat over the shoulders and a less grizzled effect from pale tipped hairs. Generally the central part of the throat and upper breast is almost pure white whilst it deepens to rich cream and even bright canary-yellow in some West Pakistan specimens at the upper edge of the throat.

Besides the above comments it is interesting to note the degree

to which this member of the genus *Martes* has modified the family characteristics so as to adapt itself to a sylvatic existence. Compared with the eight marten species occurring throughout the northern hemisphere, *M. flavigula* has the longest tail. Obviously an extremely useful balancing device for tree climbing. Also the limbs are comparatively long and the fore-legs extremely powerfully developed compared to other mustelinedae which again is a valuable adaption for an arborial existence. Though *M. flavigula* appears relatively clumsy and slow when it gallops across the ground, the tremendous muscles in its fore-arms give it astonishing agility in trees. The author once observed an adult Yellow Throated Marten run swiftly down a straight and vertical tree trunk. A feat which is surely unusual considering its size and weight and even rivals the ability of monkeys in this respect. It is further worth recording that even in the northern Himalayas of West Pakistan, where snow often persists until the end of April, and the temperatures are particularly cold at night, that *M. flavigula* does not develop a thick under-fur or wool. This is in sharp contrast to *M. foina* which is more an inhabitant of drier barren mountainous areas. The explanation presumably lies in the ability of *M. flavigula* to find well protected and snug tree hollows for sleeping during the winter months. A specimen killed March 30th, in Dunga Gali; when there was still deep snow there had no under-fur and surprisingly thin fur on the belly. It is also worth noting that this specimen which was an adult female and appeared of normal size, measured twenty-five inches from nose-tip to root of tail and nineteen inches in tail length. These measurements are slightly above the maximum given for the species by Prater (op. cit.). Perhaps one could infer from this that the average size of specimens inhabiting the north-western part of the Himalayas is considerably above the measurements given in THE BOOK OF INDIAN ANIMALS. This female specimen when fresh killed weighed seven-and-a-half pounds.

Feeding Habits:

These have already been described by earlier writers (Pocock and Prater op. cit.). *M. flavigula* is a bold and fearless hunter, capable not only of killing domestic chickens, but also newly born deer of the smaller species as well as wild birds and squirrels. In West Pakistan Flying Squirrels (*Petaurista* and *Hylopetes* spp.) undoubtedly form an important part of their diet as they invariably occur in the same forest areas. However, *M. flavigula* evidently has a distinctly sweet tooth, and besides being extremely fond of ripe fruit and honey, it also shows an ability to adapt its diet to whatever food is seasonally abundant. In mid-June in the outer Himalayan range the berries of

the ill-scented Viburnum, (*Viburnum nervosum*), are ripe and this bush dominates the forest understory. These dark purplish berries form the bulk of the diet of the martens at this season. Adult animals have been observed on several occasions clambering all over such bushes and pulling the bunches of berries to their mouth with one paw and feeding thus for prolonged periods. In the Murree Hills in late July a certain species of cicada emerges from the forest litter to hatch out into the winged adult. In the process it climbs up any suitable shrub or tree trunk for the larval skin to dry out and crack open. A young female Yellow Throated Marten shot at this season was found to have the stomach full of the partly digested remains of cicadas. *M. flavigula* normally finds its food within the forest limits but at certain seasons it descends to the lower, open cultivated orchards when these are bearing ripe fruit. In July 1965, a specimen was killed robbing the ripe laden apricot trees in village Malach at 6000 feet and approximately one-half mile below the timber line. This happened at night showing that they are not exclusively diurnal in feeding habits. They have been reported also as stealing apples in October but such reports have to be treated with caution since *Paguma larvata* and *Martes foina* do occur in the same area, and the local hill-folk do not always distinguish between these species. In the forest itself wild hill bees build nests in tree hollows during late June and July and it is well known by the local hill people, that *M. flavigula* is passionately fond of honey and successfully robs such nests. The author once observed a marten enter a tree hole which was obviously occupied by bees, at about five p.m. in early July. The hole was located high up in a Sycamore tree (*Acer caesium*). Despite watching for about ten minutes, the marten did not re-emerge though there was evidence of bees coming and going to the entrance of the hole. No definite conclusions can be made from such an observation but it seems likely that the marten is not afraid of being stung and that it was trying to dig out and reach the honey-comb. A story recounted to the writer by a German engineer is worth recording. This gentleman was a very keen hunter of both big and small game. One autumn whilst hunting in the outer ranges of the Murree foot-hills, at about 3000 feet elevation, he shot a Yellow Throated Marten. He put the animal in his knapsack which was slung on his back. Due to the anal glands possessed by this species there is always a distinct and slightly foetid odour emanating from a dead specimen. The ability of Hymenoptera to find food by scent is well known. The savage plain's bee (*Apis dorsata*) occurs in that locality, and some of these bees apparently recognized the smell of their traditional enemy. At any rate the gentleman was suddenly and viciously attacked by a swarm

of bees. He rolled on the ground to escape and ultimately rushed into a nearby creek and plunged into the water. Apparently he fell unconscious and later reached home with difficulty (Major Albert M. Gsells pers. comm.)

Breeding Biology:

The Mustelidae are known in many cases to exhibit delayed implantation of the ovum (WILDLIFE MANAGEMENT TECHNIQUES 1969). In some instances it is difficult to understand the exact value or biological significance of such a phenomenon. However, for several species of the genus *Martes* the period of gestation has been observed to last from 220-290 days (Walker 1964). With only two exceptions, the author has always observed that the Yellow Throated Marten spends its active hours hunting alone. Pairs do not appear to form any lasting bond relationship. A young family of three martens was observed to be attended exclusively by one adult which was presumably the mother. However, on two occasions one in late July and the other in early August, two adult martens were observed together. On August 10th one marten was observed excitedly chasing a second animal and making quite a loud chattering noise. This was the occasion already described when one animal was observed swiftly but sure-footedly running down a completely vertical tree trunk. Both animals ignored the observer and were not hunting. It would be reasonable to associate such behaviour with courtship or breeding activity in view of all the other observations of single animals. The female marten killed on March 30th, already referred to earlier, was found to contain two well developed but completely naked foetuses. Presumably they would have been born sometime around the middle of April and the above slender evidence would seem to support the supposition that *M. flavigula* mates in late July and early August and at least in the northwest Himalayas the young are born in April. Such a long period of gestation also suggests delayed implantation of the ova.

One year, I was fortunate to discover at Dunga Gali a den and family of three young martens in early July. At this time they were well grown, and only slightly smaller than the parent which would also seem to suggest birth in mid-April at least in this region. Up to about July 28th, they remained in the vicinity of the den which was located in a deep fissure in the bowl of a yew tree (*Taxus baccata*). This was approximately one furlong from the nearest frequented foot track and on a very steep forested slope. The three young were extremely playful and inquisitive and also remarkably vocal. It is impossible to transcribe in words the variety of squeaks, grunts and

chattering noises which these young martens made when they were playing together. In fact it was their calls which revealed their presence. The top of a square cut tree stump near the den was a favourite platform for sun basking and waiting for the mother's arrival. Twice the adult parent was observed in mid-July accompanied by the three young, foraging for insects, birds' nests etc., in both instances within about one-and-a-half furlongs of the den. On two occasions when watching the young the parent appeared but if she (?) had brought food for them she was too wary to reveal the fact and had presumably catched her prey before showing herself. The female has four teats, two of these in the inguinal region. Prater and Walker refer to litter sizes of up to five young (loc. cit.). But a smaller number would appear to be more usual for *M. flavigula*.

Distribution:

Most of the above observations were made in the Murree Hills. The Yellow Throated Marten has also been observed in Swat Kohistan where it is not uncommon as well as Dir and in the southern portion of Chitral. It is also well known to the local hill people in the lower part of the Kaghan Valley (District Hazara) and of course the Murree Hills as already mentioned. All these areas are characterised by temperate evergreen forest. Though primarily a sylvatic animal and having its centre of origin presumably in the more tropical forests of southeast Asia, it is obviously very adaptable and can also survive in stunted sub-tropical sclerophyllous forest in foothill zones. Thus, it has been seen not only in regions such as Kahuta and the Lehtrar Valley north of Rawalpindi but also in the Kalah Cheetah Hills of Campbellpur District where the dominant species are *Olea cuspidata* and *Acacia modesta* which only grow to 10 or 12 feet height. It has also been recorded in stunted oak forest (*Quercus balot*), in southern Chitral. Such ilex oak country represents the extreme west of its known range and perhaps not un-coincidentally the western limit of *Petaurista albiventer* (the Large Red Flying Squirrel).

ROBERTS COTTON ASSOCIATES LTD., T. J. ROBERTS
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May 9, 1970

REFERENCES

ELLERMAN, J. R. & MORRISON-SCOTT, T. C. S. (1951) : Checklist of Palaearctic and Indian Mammals. British Museum. London.

POCOCK, R. T. (1939) : Fauna of British India—Mammalia Vol. II. Taylor & Francis Ltd., London.

PRATER, S. H. (1965) : The Book of Indian Animals. Revised Edition 1965. Bombay Natural History Society.

WALKER, E. P. (1969) : The World of Mammals Vol. II. Johns Hopkins Press, Baltimore.

3. THE DUGONG, *DUGONG DUGON* (MULLER) IN BURMESE WATERS

In 1964 and 1965 two dugongs were caught in the nets of the Lampi State Fisheries, Mergui Archipelago. Both were males.

In 1965 and 1966 dugongs were recorded only from Manaung township, Kyaukpyu district, Arakan division, along the Burma coast.

On 24 August 1965 a male dugong was caught near Akyab in the Arakan sea. It was brought from Akyab to Rangoon and arrived at the Zoological Gardens on 27 August. It died on 3rd November 1965.

A female captured in the coastal waters off Cheduba Island, about three or four miles from the Arakan coast on 26th October 1966, was brought from Akyab to Rangoon by boat and arrived at the Zoological Gardens on 2nd November 1966. It died on 25th March 1967. A large male was reported to have been trapped in a fishing net in the same area where the female was caught, but had to be released as it was too strong and would have dragged the fishing net away. Another male caught by a fisherman of Zayatkon village in Cheduba township off the sea coast of Cheduba Island in January 1970 arrived at the Zoological Gardens on 15 January 1970. It died on 20 February 1970. A female dugong caught by the same team in February 1970, arrived at the Zoological Gardens on 13 February 1970. It was still alive on 26 February 1970, the date on which I recorded this note [1].

Method of Capture:

In Burma dugongs are not caught deliberately for food. They are usually caught along with fish during beach fishing. Sometimes when the dugong is observed, fishermen leave the fish to catch the dugong as it brings in more cash. Occasionally dugongs are caught on request from the Management Board, Zoological Gardens, Rangoon.

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[1] Died on 30 Aug. 1970.